

**WHAT IS CLAIMED IS:**

- 1        1. A system for providing graphical and analytical dynamic modeling of a multi-
- 2        dimensional mechanical mechanism, said system comprising:
- 3                at least one processor for computing a dynamic simulation of movement of the multi-
- 4        dimensional mechanical mechanism, and rendering the multi-dimensional mechanical mechanism, the
- 5        dynamic simulation simultaneously performing kinematic and tolerance modeling; and
- 6                a display for displaying the rendered multi-dimensional mechanical mechanism during
- 7        the dynamic simulation.